Increasing Diversity in STEM

Panelists will address the critical importance of fostering a diverse group of STEM professionals and strategies for overcoming barriers to develop a solid pipeline of future STEM leaders.

**Moderator:** Elissa Nadworny, National Public Radio

**Anthony DePass,** Principal Investigator, Understanding Interventions, and Professor of Biology, Long Island University

**Heather Metcalf,** Chief Research Officer, Association for Women in Science

**Sonia Zárate,** President of the Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) and Program Officer at Howard Hughes Medical Institute
Increasing Diversity in STEM: Bridging Practice and Scholarship

Anthony L. DePass PhD
Co-Director: Understanding Interventions that Broaden Participation in Science
Professor of Biology: Long Island University Brooklyn

Strategies for Increasing Graduate Program Diversity
March 26, 2019
Cambridge Somerville Youth Study

- Designed to prevent delinquency.
- Targeted “pre-delinquent” boys.
- 1939-1945
- Program participation avg 5.5 years, median 10.5 years old.
- Boys received individual counseling, taken on trips, recreational activities, received tutoring in reading and math, participated in summer camps and encouraged to attend church.

Northeastern University CSSH, School of Criminology and Criminal Justice
C.S.Y.S. Randomized Experiment

- 506 Boys matched in “diagnostic pairs”, one receiving the treatment.
- Follow-up 1948 and 1956 (no measurable impact).
- 1975-76 (30 year post intervention) Treatment group more likely to: Participate in criminal behavior; alcoholic; mental illness; die before age 35; stress related disorder; find work unsatisfying.
- Peer Deviancy hypothesis etc.
- 70 year follow-up

Northeastern University CSSH, School of Criminology and Criminal Justice
Context Matters

- Interventions that target Diversity in the STEM disciplines often lack the hypothesis based empirical approaches typical of the STEM disciplines they are designed to impact.
- Focus on “practices” (WHAT) rather than the underlying reasons (WHY).
- Often context dependent and not easily transferrable.
- Often not informed by scholarship.
- Potentially relevant scholarship can be impenetrable and often reflect academic rather than translational objectives.
Conference Reports

UI seeks to systemically analyze key factors contributing to and inhibiting success of persons of color, women, and other underrepresented populations in science. Such analysis requires carefully designed research and execution.

Each year, thematically organized conference reports are published both electronically and in print. These reports summarize ideas presented in plenary, symposium, and poster format during the two and one-half day conference.
Article Database
The UI Annotated Bibliography is a searchable database containing a representative, non-exhaustive, and expanding set of materials relevant to interventions that diversify science, technology, engineering, and mathematics (STEM) fields. Users can search the database to find material of interest, view the list of obtained citations, and print the obtained records.

Journal List
The UI Journal List contains a representative, non-exhaustive, and expanding list of journals that have published articles relevant to interventions that diversify science, technology, engineering, and mathematics (STEM) fields. The UI Journal List is also searchable, enabling users to locate journals that may contain articles of interest or journals in which the user’s own research might be published.
**Reports**
UI Reports is a searchable database containing a representative, non-exhaustive, and expanding list of reports relevant to interventions that diversify science, technology, engineering, and mathematics (STEM) fields. Users can search the database to find reports of interest and view and print the list of obtained records. Clicking the hyperlinks in each record will direct users to the pdf of the report when it is publicly available.

**Evaluation Measures**
UI Evaluation Measures is a searchable database containing a representative, non-exhaustive, and expanding set of articles pertaining to measures of concepts of interest (e.g., self-efficacy, academic identity, resilience, etc.) to researchers, evaluators, and other program staff. UI Evaluation Measures will contain material primarily from the scholarly literature with articles in which scales/instruments are published with validity and reliability information.
UI INDEX

Articles with 50+ Citations
The UI Articles with 50+ citations consists of a searchable database containing citations obtained from different academic databases. The articles report on studies of STEM and biomedical/behavioral science interventions, programs, and enrichment activities designed to diversify science, technology, engineering, and mathematics (STEM) fields. Currently the UI Articles Receiving 50+ citations database contains citations obtained from the SCOPUS academic database, which covers a wide variety of publications related to STEM and biomedical/behavioral science disciplines. Publications were included in the database if they received 50 or more citations as of the date the search was conducted (18 Jan 2016) and the item is in English.

NIH Funded Research on Interventions
This resource contains information on the research programs that have been funded by the NIH-NIGMS mechanisms related to research on interventions. The funding mechanisms covered by the resource are: a) Research on Interventions that Promote Research Careers; b) Research to Understand and Inform Interventions that Promote the Research Careers of Students in Biomedical and Behavioral Sciences; and c) the ARRA funded Pathfinder Award to Promote Diversity in the Scientific Workforce. The resource will eventually contain 4 sections: a) a researcher database; b) white papers; c) reports; and d) past funding announcements.
Thank You

• Daryl Chubin – Co Director UI
• Shanta Outlaw- Program Manager
• Elisabeth Russell-McKenzie- Education Psychology- Evaluator
Increasing Diversity in STEM

Strategies for Increasing Graduate Program Diversity
March 26, 2019

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Our Mission

AWIS champions the interests of women in science, technology, engineering, and mathematics (STEM) across all disciplines and employment sectors. Working for positive system transformation, AWIS strives to ensure that all women in these fields can achieve their full potential.

Isabel Escobar
Professor of Chemical and Materials Engineering, University of Kentucky
AWIS Member since 2002
Intersectionality
Retention Efforts Are Necessary

STEM Graduate Degrees (2013) versus STEM Occupations (2017)

Source: AWIS Analysis of 2013 and 2017 NSF SESTAT Data
Increasing the Retention of a Diversity of Women in STEM
Connect with us

www.awis.org

Association for Women in Science

/AssociationforWomeninScience

@AWISNational
IMPROVING THE SCIENTIFIC ACADEMIC ECOSYSTEM

Sonia Zárate, PhD
Program Officer
Howard Hughes Medical Institute (HHMI)
President
Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)
Another Way to Think About It

*Increase the Pipeline → Fix the Pipe*

- Pipeline → Watershed
- Selecting Talent → Developing Talent
- Individual’s Job → Everyone’s Job
Strategy 1: Start with the Vision

■ What is the change that we want to see?
■ What are the conditions necessary?
■ How does what we are currently doing map to the conditions?
■ Where are the gaps?
■ Filling in the details between the vision and the programming.
■ Building in reflection and optimization
Strategy 2: Optimize Touchpoints

- Nomination Process
- Application Process
- Review Process
- Programming
Strategy 3: Underlying Goal is Dispersion

- Community
- D&I Fund
- CAM
THANK YOU, QUESTIONS?